REPORT OF CONSTRUCTION STORM WATER COMPLIANCE INSPECTION

AT

WATERS EDGE, PLATS 3 & 4.
157th Place & Windsor St., Overland Park, Kansas

Waters Edge Land Company, LLC
10800 Farley, Suite 265, Overland Park, Kansas 66210

NPDES Permit Numbers: KSR110144, KSR110875,

March 23-24, 2016

BY THE

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Environmental Sciences and Technology Division

INTRODUCTION

At the request of the Water, Wetlands, and Pesticides Division, Water Enforcement Branch, I conducted a Construction Storm Water Compliance Inspection at the Waters Edge single family residential development site in Overland Park, Kansas, on March 23-24, 2016. The inspection was conducted under the authority of Section 308 of the Clean Water Act, as amended. The inspection was conducted in accordance with EPA Region VII Standard Operating Procedures for Compliance Inspections (ENST SOP No. 2332). This narrative report and the attachments present the results of the inspection.

PARTICIPANTS

Waters Edge Land Company, LLC:
Mark R. Simpson, President
Steve Deuthmann, Site Superintendent

Phelps Engineering, Inc.:
Timothy J. Tucker, P.E.

U.S. Environmental Protection Agency (EPA) Region VII:
Peter Green, Environmental Scientist

FACILITY DESCRIPTION

Waters Edge is a single family residential development begun in 2006 by the developers Saul Ellis and Mark Simpson. (Some other subdivisions developed by Ellis & Simpson are: Lions Gate, Nottingham by the Green, the Reserve at Iron Horse, Whitehorse Estates, and IronWood). The Waters Edge subdivision occupies most of the southeast quarter section of Section 10, Township 14 S, Range 25 E, in Johnson County, Kansas, which is northeast of the intersection of 159th Street and Mission Road and

within the city limits of Overland Park. The land was formerly agricultural and drains to the south and east to the nearby Blue River. (The old topographic map in Attachment 1C shows 6 Sinclair Gas aboveground oil storage tanks in the area of Plats 2 & 5. These had been removed before this development started). Plats 1 (46 lots) and 2 (24 lots) were developed in 2006-2009. Due to the subsequent recession and poor market conditions, homebuilding slowed to a pace of 2 to 4 homes per year through 2013. Plat 3 (30 lots) was developed in 2014 and home construction is nearly complete. According to Mr. Simpson, 35 homes (15 custom and 20 speculative) are currently under construction. The subdivision is open to independent builders. I counted signs for 9 different homebuilders operating there. Clearing for Plat 4 (33 lots) started in the spring of 2015 and finished lots went up for sale in December 2015. Construction has started on a few lots. The week prior to this inspection, the developers purchased 12 more acres south of Plat 4. Designs for that area (Plat 5) have been submitted to the City of Overland Park for approval. The first infrastructure work in Plat 5 (sanitary sewer installation) is expected to begin in May. (Some disturbance was already evident in this area; the City required a gravel road to be constructed through this area as part of the Plat 4 development, to allow fire protection access from the south on 158th St.)

Attachment 1A is a map from the developers' web site. Attachment 1B is an aerial map/photo, and 1C is a USGS topographic map of the area. A primary feature of the development is the series of ponds which have been excavated (up to 14 feet deep; photos 47, 49) along the major drainage course. This discharges to a small wetland near 159th Street (see photos 41-44). From there, storm water flows under the road and railroad into the Blue River. Storm water from the east side of the site collects at the base of a large 20-foot high berm which separates the subdivision from the railroad track. The subdivision is bordered on the north by Blackthorne Estates, on the northeast by a municipal wastewater treatment plant, on the east by the KC & Southern Railway and the Blue River floodplain, on the southeast by a sod farm, on the south by 159th Street, and on the west by Mission Road.

INSPECTION PROCEDURES

I arrived at the site on Wednesday afternoon, March 23, 2016. I drove through the development and called the phone number listed on a sign at the sales office. The salesperson gave me Mr. Simpson's number. I called Mr. Simpson and explained the purpose and scope of the inspection. He said that he would notify Mr. Deuthmann and have him contact me. I again drove through the development and took photographs (Attachment 2). I again called the developer's office and asked to be connected with Mr. Deuthmann, who was at another site. Mr. Deuthmann suggested that I proceed to the offices of Phelps Engineering to review the site Storm Water Pollution Prevention Plan (SWPPP). I proceeded to the engineers' office in Olathe, introduced myself to Mr. Tucker, and presented my credentials. He discussed the history of the development project and summarized the sediment and erosion control measures. Since it was late afternoon, he agreed to print a set of plans for me to pick up the following day. I returned to the Phelps Engineering office on Thursday afternoon and met with Messrs. Simpson, Deuthmann, and Tucker. Mr. Tucker gave me copies of the Notices of Intent (NOI), SWPPPs, and Sediment and Erosion Control Plan drawings for Plats 3 and 4. Mr. Simpson gave me copies of invoices for erosion and sediment control work done on the site since 2009. I discussed some of my observations on the site from the previous day, and showed Mr. Simpson some of the photographs I had taken. I issued a Notice of Potential Permit Violations (NOPV, which Mr. Simpson signed; Attachment 3) for failure to conduct regular site inspections. Several days later, I received a parcel with a letter from Mr. Simpson (Attachment 4) responding to the NOPV. The parcel also included a summary of the site inspections conducted by the Overland Park Public Works Department in Plats 2, 3 and 4 since October 2013, and a copy of the sales contract language, which I had requested.

FINDINGS AND OBSERVATIONS

1. NPDES Permits: The SWPPP documents provided by Mr. Tucker contain copies of the Notices of Intent submitted for coverage under the Kansas general storm water operating permit. (Copies of the signed NOI forms are in Attachment 13.) The NOI for Plat 3 (KSR110144) was submitted to the Kansas Department of Natural Resources (KDHE) on April 11, 2014. The NOI for Plat 4 (KSR110875) was submitted on February 6, 2015. The Plat 3 document includes copies of letters sent to the Kansas Department of Wildlife, Parks and Tourism and the Kansas State Historical Society describing the proposed development. (The Plat 4 document includes similar letters but they are dated July 25, 2013 and refer to a different project [Coffee Creek, Plat 5]). Attachment 5 is a copy of the Kansas general storm water operating permit language (from the website www.kdheks.gov/stormwater).

The developer had also obtained a Section 404 permit (which has since expired) to remove a wetland during development of Plats 1 & 2. As mitigation, a wetland has been preserved on the west side of Plat 2 (just north of the sediment forebay for the main pond).

2. Storm Water Pollution Prevention Plan (SWPPP): Attachments 6 and 7 are the SWPPP documents for Plats 3 and 4, respectively, which are dated April 7, 2014, and February 6, 2015. The narrative SWPPPs outline best management practices (BMPs) to be implemented during construction. BMPs are outlined for each of the 5 phases of construction, which include: 1. Sanitary sewer installation; 2. Mass grading; 3. Storm sewers; 4. Street pavement; and 5. Utilities. The BMPs include:

- perimeter silt fences and/or mulch berms
- a stabilized construction entrance
- seeding and mulching of soil stockpiles
- intermediate silt fences after site grading
- silt dikes or other sediment controls at area inlets
- gravel bags (or Gutter Buddies®) at curb inlets
- rock check dams in concentrated flow drainage courses
- seeding and mulching (disked or pinned-in) of areas where land disturbing activities will cease for 14 days or more
- concrete rinse-out containment facilities

After lots are sold, erosion and sediment controls are required to be installed by the owners prior to construction activity.

The SWPPPs state that site inspections are to be conducted at least once every 14 days and after any rain event that deposits ½ inch of rain or more. Sediment controls are to be cleaned out when their capacity has been reduced to ½ of their design capacity. Curb inlet sediment controls are to be cleaned after every ½ inch rain or whenever there is visible accumulation. A blank 4-page inspection form is included in Section V of the SWPPP. There is also a blank 1-page form for recording the dates of site stabilization and construction activities. (The developer had no completed versions of either form available; see discussion below). Section IV of the SWPPP is designated for insertion of Contractor Certification statements, but there were no such statements. The documents do include SWPPP certification statements which were signed by the engineer and the owner/developer.

The SWPPP documents include the Drainage Map and an Erosion Control Plan, or ECP (for the mass grading phase, or Phase II) for each plat, as they were originally submitted to the City. The Drainage

Maps show the limits and acreage of each drainage area. (Two versions of the Drainage Map are included for Plat 4. The map was revised to include the fire protection lane.) The Erosion Control Plans show the location and extent of each BMP to be installed, and include a chart showing the sequence for their installation and removal. Another sheet includes design details for the structural BMPs (copy included in the Plat 3 document-Attachment 6). The Overland Park Design and Construction Standards Manual is incorporated, by reference.

Attachment 8 contains modified versions of the Erosion Control Plans for Plats 3 and 4. Modifications were required by the City for project approval. For Plat 3, the ECP was modified to relocate the rock construction entrance and concrete washout area, and to increase the size of several areas to be stabilized with turf reinforcement matting (TRM). For Plat 4, the City required the addition of the fire protection lane (with associated erosion control measures. The location of a soil stockpile was slightly relocated, and additional silt fences, an area inlet BMP, and a rock check were added.

Neither ECP includes a sedimentation basin. The Drainage Maps show that there are 2 individual drainage basins in Plat 3 and 3 basins in Plat 4. All of the disturbed drainage areas are less than 10 acres in size. Mr. Tucker told me that a sedimentation basin had been required for the Plat 2 project. The forebay for the main pond (photos 47, 49) was utilized as a sedimentation basin for that project. (The basin was equipped with a temporary riser pipe until the area was stabilized). Future plats may also require sedimentation basins. Plans for Plats 5 and 6 include the excavation of several permanent water features in the southwest area of the subdivision. These will be initially utilized as sedimentation basins.

3. Storm Water Site Inspections: The storm water permit requires regular site inspections (minimum once every 14 days and within 24 hours after any precipitation event of ½ inch or greater). The SWPPP documents also spell out that site inspections will be conducted as required in the permit. When I spoke with Mr. Deuthmann on March 23, I requested copies of all storm water site inspection reports for Plats 3 and 4. When I met with him and Mr. Simpson on March 24, they had no site inspection reports. Mr. Simpson informed me that he and Mr. Ellis had previously contracted Gordon Energy to conduct storm water site inspections. Several years ago, after discussing the expense ($300 to $400 per month), the decision was made to discontinue them. Gordon Energy continues to provide installation and maintenance of site erosion and sediment controls, as ordered, but they do not inspect the site. I issued the attached NOPV for failure to conduct and document regular site inspections as required by the permit (and as stated in the site SWPPPs).

I asked Mr. Deuthmann on two occasions whether he had a marked-up version of the SWPPP showing modifications to the original erosion and sediment controls. He never said whether any such "living documents" existed but he did not produce any. Generally any such SWPPP modifications occur after site inspections reveal that the existing storm water measures are inadequate or inappropriate. Since no site inspections are being done at Waters Edge, it seems unlikely that modifications would have been made.

Mr. Simpson offered me copies of his invoices dating back to 2009 for erosion and sediment control installation and maintenance on the Waters Edge development sites (Attachment 9).

Mr. Simpson also pointed out that the City of Overland Park inspected the sites regularly. He agreed to contact them for copies of their reports. The materials he sent me the following week included a summary of site inspections which he obtained from the City (Attachment 10). I also called the City and spoke with David Miller, who is in charge of the City's construction site inspection program. Mr. Miller said that the City inspects sites on a random basis and not on any particular schedule. The Waters Edge

developers had complied with all of the City's directives, he said, and no enforcement actions had been taken.

4. Contractor Invoices: Mr. Simpson gave me copies of invoices paid by the developer since 2006 to 3 individual contractors for erosion control installation and maintenance in Plats 2, 3 and 4 (totaling $151,080; Attachment 9). Gordon Energy installed and maintained silt fences, safety fences, rock checks, turf reinforcement matting, and storm inlet protection. Seeding and mulching were done by Earthworks until 2012 (Plats 1 & 2), and then by Ron Weers Construction, Inc. after that.

The invoices for Gordon Energy show that in the last 2 years (2014 & 2015), 2.37 linear miles of silt fences were installed at Waters Edge, along with 10 mulch socks for inlet protection. (Earlier invoices for 2009 through 2013 show another 3.13 miles of silt fence, 22 gravel bags and 19 mulch socks). Storm drain inlets were cleaned out 9 times in 2014 and 3 times in 2015. A bobcat was used to clean the streets twice in 2014 and twice in 2015. The invoices for Weers Construction show that 55 acres were seeded in the last 2 years.

5. Overland Park City Inspections: Attachment 10 contains chronological summaries of the site inspections conducted by the City of Overland Park since August 2013 at the Waters Edge development.

For **Plat 3**, the records show that a land disturbance permit (Permit # LDP2014-00014) was issued on July 11, 2014, and a pre-construction meeting was held on July 14, 2014. Seven site inspections (i.e., slightly more than one per month) and 2 follow-up inspections were conducted between July and December for erosion control. The site passed the first 4: on July 23, August 25 & 28, and September 25. On October 31, it failed inspection due to lack of protection around an area inlet. On November 25, it failed due to the need for stabilization. On re-inspection a week later, the site was seeded but 20% of it was not mulched. The site passed another follow-up inspection a week later.

The record suggests that the City reduces the frequency of its inspections after a site has been stabilized; in 2015, the City returned only twice; on March 31 and November 30. The site failed the latter inspection due to the need to clean out the sediment devices in the curb inlets. The inlets were cleaned and passed a follow-up inspection on December 7.

For **Plat 4**, a land disturbance permit (LDP2015-00010) was issued on February 26, 2015. The erosion controls were inspected by the City 4 times between July and December, 2015. The site passed inspections in July and September, but failed in October and November due to the lack of inlet protection and/or the need to clean out curb inlet devices. In both cases, the site passed follow-up inspections a week later. As of the date of my inspection, the City had not yet inspected the site in 2016.

Since Plats 1 and 2 were permitted in 2006-2009, I elected to focus this inspection on Plats 3 and 4, where work is ongoing. Nevertheless, the developer provided records for Plat 2 as well. Even though **Plat 2** was first opened up over 6 years ago, the City's records show that permit #PIP2013-00010 (a Public Improvement Permit, covering installation of the streets and storm sewers) was issued in August 2013. Erosion control inspections were conducted approximately once per month between October 2013 and December 2014. These are documented under the PIP permit number until June 2014, when the land disturbance permit (#LDP2013-00025) was issued, and then under the LDP permit number after that. The site failed 5 of these inspections: on November 18, 2013 (silt fences blown down and inlet protection needed), May 30, 2014 (inlets needed cleaning), June 20 (inlets needed cleaning), July 8 (concrete washout needed cleaning out), and August 28, 2014 (inlets needed cleaning). The site passed follow-up inspections a week later in each case except on June 20, 2014. Although the inlets were

cleaned out, it had rained several times in the intervening week and they were silted in again. This was partially attributed to inadequate lot controls on the part of the homebuilders. The City notified the homebuilders of their responsibilities to maintain controls, and the site passed another follow-up inspection. In 2015, the City inspected Plat 2 in March, October, and November. The site failed all three inspections, but passed follow-up inspections a week later. Deficiencies cited included the need to fix or remove silt fences, stabilize bare areas, fix eroded rip rap at the sediment basin forebay, clean out the old concrete washout area, and clean out curb inlets.

6. Individual Lot Certification: When the developer sells individual lots to homebuilders, (in lieu of Individual Lot Certifications), the Master Lot Sale Agreement (Attachment 11) obligates the buyer to comply with the developer's SWPPP and all requirements of the State storm water permit. The builder agrees to maintain appropriate BMPs and erosion control measures until final stabilization of the full lot is achieved. The agreement grants the developer access to the property to inspect and maintain erosion control devices. The agreement requires the buyer to provide a $3000 compliance deposit at closing. This deposit may be drawn upon to offset any costs incurred by the developer should the builder fail to adequately maintain site controls.

7. Inspection Observations: Issues I observed while walking/driving through the site included:

- Curb inlets: Six of the curb drain inlets had enough sediment accumulation to render them ineffective in filtering storm water (see photos 17, 26, 27, 29, 31 and 33 in Attachment 2). The maintenance procedure outlined in the SWPPP states that they should be cleaned out whenever there is visible sediment accumulation or after any ½ inch rainfall event.

  I showed these photos to Mr. Simpson. In his subsequent letter responding to the NOPV, he states that the curb inlets that I observed were silted in as a result of rain the night before. It should be noted that it did not rain the night before my inspection. Rainfall records for a weather station at Lionsgate, (approximately 2 miles northwest of the site; see Attachment 11) indicate that the last precipitation event (0.29 inches) had occurred on March 12, 11 days prior to this inspection, and it had been 10 weeks since the last event of ½ inch or more on January 7. (Mr. Simpson may have been recalling the 0.36" rain that occurred on *the day of* the inspection but that did not start until 7 pm-*after* I had left the site).

  When the City of Overland Park inspected Plat 3 on November 30, 2015, the curb inlets were full of sediment (see Attachment 10). The inlets were cleaned out and passed a follow-up inspection the following week. (The invoices for Gordon Energy also show that the inlets were cleaned on December 7, 2015). The site had not been inspected by the City since then. Rainfall records show there were 3 rainfall events of ½ inch or greater since December 7; on December 13 & 26 and on January 7.

  Although rainfall records for 2015 were not available for the Lionsgate weather station, I found more complete records for a station approximately 2¼ miles north-northwest of the site, at 137th and Kenneth (www.wunderground.com). There were no records for January 2015, but the total rainfall for the last 11 months of 2015 was 44.15 inches. There were 30 events with 0.5 inches or more of precipitation in 2015. The contractor invoices for Gordon Energy show the developer was billed 3 times for cleaning out curb inlets in 2015 (including when they were ordered to by the City on November 30).

  In contrast, the developer was billed 9 times during 2014 for cleaning out curb inlets. There may

be several reasons for this decline in the frequency of cleaning of curb inlets between 2014 and 2015. Weather is probably not one of them, however: Regional rainfall records show 2015 was slightly wetter than 2014. (KCI airport recorded 40.0 inches in 2014 and 46.6 inches in 2015. There were 25 events in 2014 with ½" or more of rain and 30 such events in 2015). Without routine site inspection reports, it is not known how many curb inlets were in place in areas with disturbed soils at any given time.

Comparing the developer's invoices with the City's inspection records, it appears that the curb inlet devices were generally only cleaned out when the City ordered them to do so, after failing inspection. (The inspection of Plat 3 on March 31, 2015 was an exception; no deficiencies were cited for the curb inlets).

- Concrete Washout Box: Photos 34 & 35 show the concrete washout box provided for concrete delivery trucks to use on site. The box is delivered and removed by a contractor. Residue observed on the ground down-gradient from the box indicates that the box had been overfilled recently. Mr. Simpson explained that the box is delivered and picked up by a contractor. The box had recently been overfilled because the contractor had failed to pick it up when it was full. Since then, a different contractor was hired to provide this service.

  Concrete residue was also observed at the eastern terminus of 157th Place in Plat 2 (photo 2), indicating that this problem had also occurred at least once before.

- Construction Entrances/Track-out: The site SWPPP (and the City of Overland Park) require homebuilders to install a rock entrance on each lot before beginning work, in order to minimize track-out onto the street. Photo 24 shows a good example of this BMP. Others appeared to be inadequate, however (e.g., photos 23, 30), or were not being used by exiting vehicles (photo 28). Mr. Simpson said that the streets are swept 6 or 8 times a year, including before open house events. (The invoices for Gordon Energy also show the use of a bobcat to scrape the streets twice in 2014 and twice in 2015).

- Erosion: I noticed a few areas that had been seeded and mulched where the vegetation was very thin (photo 40). A ravine (photo 20) and some erosion rills (photos 39, 40) were also observed on the hillside east of Plat 2.

- Housekeeping: Trash and litter were observed at numerous locations on the site and east of the site (e.g., photos 4, 7, 8, 12, 19, 21, 22, 25, 26, 29, 31, 32, 33).

- Other BMPs I noted on the site were a 2 foot wide, 4 foot high mulch berm around the eastern perimeter (photos 21 & 22), a vegetatively stabilized soil stockpile (photo 2) turf reinforcement matting and rock check dams (photo 38), and seeded/mulched areas (photos 45, 46).

During the inspection, I noted an eroded ravine (photos 10, 11) along the north side of 159th St. approaching the culvert which discharges from the subdivision. I later learned that is not the developer's property, but is owned by Magellan Pipeline Company, and is not within the developers' control. On the day of the inspection, I did not observe visible evidence of sediment deposition in the tributary leaving the site (photo 44).

CONCLUSIONS/RECOMMENDATIONS

1. The Kansas General Permit authorizing the discharge of storm water runoff from construction activities requires the permittee to inspect the site on a regular schedule (minimum once every 14 days *and* within 24 hours after any precipitation event of ½ inch or greater). The scope of the inspection should include all disturbed areas, all pollution control measures (for proper installation and maintenance), all permanently or temporarily stabilized areas, and all locations where storm water runoff leaves the site. A report of each inspection is required to be documented within 24 hours, and should include: the inspector's name, the date of the inspection, observations relative to the effectiveness of the BMPs, actions taken or necessary to correct deficiencies, and a listing of areas where construction operations have permanently or temporarily stopped. Any deficiencies must be corrected within 7 days.

   The permittee is not conducting regular site inspections and had no records of such. A Notice of Potential Permit Violations was therefore issued at the conclusion of this inspection.

2. Any departures from the erosion and sediment controls described in the Erosion Control Plan should be justified and documented on the Erosion Control Plan. The site SWPPP should include signed certification statements from all contractors operating on site, to ensure that they are aware of their responsibilities to protect and maintain the storm water pollution prevention measures outlined in the SWPPP. Records of areas where construction activities have ceased and of areas which have been vegetatively stabilized should also be kept with the SWPPP.

3. The storm drain inlets observed during this inspection had devices installed to prevent sediment from entering the storm sewer. However, most of them had enough sediment accumulated in them to render them ineffective in filtering storm water runoff. The site Storm Water Pollution Prevention Plan (SWPPP) calls for the inlet devices to be cleaned out whenever accumulated sediment is visible, or after any storm event that deposits ½ inch of rain or more. The developer's contractor invoices indicated that the inlets were last cleaned out on December 7, 2015. Rainfall records indicate that at least 3 rainfall events of ½ inch or greater had occurred since then.

   A comparison of records for 2014 and 2015 shows that the frequency of cleanout of the storm inlets declined from 9 times in 2014 to 3 times in 2015 (even though there was no decrease in rainfall).

4. Litter observed around the site and in the undeveloped area east of the site indicate the need for better housekeeping by the developer and/or homebuilders operating on the site.

5. Concrete residue was observed on the ground at two locations, indicating that the concrete washout box was over-filled. These should be replaced promptly when full.

6. Tracked-out soil was observed in front of a home under construction, where vehicles were not using the construction entrance provided. The developer should monitor the site and remind homebuilders of their contractual obligation to comply with the site SWPPP.

7. The developer's failure to conduct regular site inspections likely contributed to the other deficiencies noted above.

Peter M. Green
Environmental Scientist
Activity Number: WGP410
Date: April 15, 2016

Attachments:

1. Subdivision Map (http://watersedge-op.com/maps), Aerial Photo, Street Map and USGS Topographic Map (4 pages)
2. Digital Photos, with Captions, taken during Inspection (1 map + 48 Photos; 50 pages)
3. Signed Notice of Potential NPDES Permit Violations (NOPV, 1 page)
4. March 29, 2016 Letter from Developer, Re: Response to NOPV (2 pages)
5. General Kansas Storm Water Permit (www.kdheks.gov/stormwater 26 pages)
6. Storm Water Pollution Prevention Plan for Waters Edge, Plat 3 (29 pages [8"x11"] and 3 sheets [24"x36"])
7. Storm Water Pollution Prevention Plan for Waters Edge, Plat 4 (31 pages [8"x11"] and 3 sheets [24"x36"])
8. Modified Erosion Control Plans for Plats 3 & 4 (2 sheets [24" x 36"])
9. Developer's Contractor Invoices for Installation and Maintenance of Site Erosion and Sediment Controls (24 pages)
10. Chronological Reports of City Inspections at Waters Edge Construction Sites; Plats 2, 3 and 4 (8 pages).
11. Copy of Waters Edge Master Lot Sale Agreement (10 pages)
12. Daily and Weekly Rainfall Records for March 23, 2016, Lions Gate Weather Station KKSOVERL44 (from www.wunderground.com; 6 pages)
13. Signed NOI Forms (2 pages)